



Educating Patients About Proper Disposal of Unused Medicine

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Best Practices Example:

University of Michigan Hospital System

Unwanted Medicine Disposal - Doing it the right way

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**MICHIGAN STATE
UNIVERSITY**



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Great Lakes Challenges



- ◆ Invasive Species
- ◆ Habitat Loss
- ◆ Non-point source Pollution
- ◆ Avian Botulism
- ◆ Fish Diseases

Environmental Practices



Corporate culture” campus-wide:

- ◆ OSEH Environmental Stewardship Program: Reduce environmental impact.
- ◆ Pollution Prevention (P2) Program: Reduce waste generation and overall environmental footprint.
- ◆ Environmental Stewardship Program: SBS every-day things (light bulbs).

Environmental Practices

Improving Surface Water Quality on Campus



The picture above displays some examples of point source and nonpoint source pollution which impact our surface waters.

The water we use today will be re-used tomorrow. The quality of the water is impacted by the quality of the water when it enters the surface waters. Two sources of storm water pollution are point source pollution and nonpoint source pollution. Point source pollution comes from a specific location such as a factory or water treatment plant. Nonpoint source pollution comes from many different locations and is hard to identify a specific source. Many times nonpoint pollution occurs after it rains. Storm water runoff picks up pollutants such as sediment, debris, chemicals, and organic matter. All of these pollutants are deposited into the surface water with no prior treatment. The objective is to treat point source water before it enters the surface waters, or to control the amount of pollutants we leave on and in the ground subject to non-point runoff.

UM - Campus-wide:

- ◆ Re-use & recycle programs
- ◆ Hazardous waste education & reduction programs
- ◆ Wastewater management initiatives
- ◆ Energy conservation programs
- ◆ Eco-friendly products (interior design, equipment, general supplies)
- ◆ General & medical waste reduction
- ◆ Evaluation & improvement

About UMHS



- ◆ Three hospitals
- ◆ 30 health centers
- ◆ 120 outpatient clinics
- ◆ Medical School & School of Nursing
- ◆ Faculty Group Practice
- ◆ Michigan Health Corp.

About UMHS



Annual Activity:

- ◆ 1,615,774 Clinic Visits (all sites excluding ER)
- ◆ 913 total licensed beds
- ◆ 43,173 Admissions
- ◆ 75,273 Emergency Visits
- ◆ 64,669 Surgical cases
- ◆ 3,875 Newborns

UMHS Leadership & Environmental Protection



- ◆ UMHS is nationally recognized for leadership in implementing and continuous improvement of environmentally-friendly practices.
- ◆ UMHS employees participate in an environmental steward program. Stewards receive and distribute information about reducing, re-using and recycling.

UMHS Best Practices



UMHS waste handling methods include separating waste into three main categories for processing:

1. General Waste (food, paper)
2. Regulated Medical Waste (blood, organs)
3. Hazardous Waste (mercury, acids, chemotherapy drugs)

Safety Management Services



Mission:

To lead the University of Michigan Hospitals and Health Centers in the prevention of workplace injuries and illness; maintain regulatory compliance; and foster environmental leadership.

Safety Management Services

Date: Wed, 05 Mar 2008 09:35:47 -0500

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March: Poison Prevention Week (March 16-22)

Nineteen month old Liam wandered into a fenced work area that an employee left unlocked. It didn't take him long to find trouble...Liam's mother, Carol Roberts, heard screams as she ran toward him. Listen to Carol Roberts retell the story of how she took appropriate steps to respond quickly: <http://video.nbc4.com/player/?id=84422> <<http://video.nbc4.com/player/?id=84422>>

Did you know that poisoning is the second leading cause of unintentional injury related deaths in the home? A poison is a substance that causes illness or harm if someone eats, drinks, touches it, or breathes it in. Poisons are found everywhere - in the kitchen, bathroom, garage, shed or barn, yard, and on the job. Many everyday things can be poisons if they are used in the wrong way, in combination with other substances, or in large amounts.

Age groups at greatest risk

Not only are **young children** at risk for poisonings, but so are **older adults**. Research by the Home Safety Council shows that nearly one in ten caregivers of an older adult age 60 or older recently reported that their loved one had experienced a poisoning incident at home, most often from taking the wrong type of medications. Even if you don't have small children, poisonings can occur when youngsters visit homes where no children live and when older persons carry medicines into homes where small children live.

Examples of poisons

- Drugs (including vitamins, herbals, prescription and non-prescription medicines)
- Caustic cleaning products (drain opener, toilet bowl cleaner, rust remover)
- Mercury (broken thermometers and compact fluorescent bulbs)
- Auto fluids (antifreeze, windshield washer)
- Carbon monoxide gas (fuel-burning equipment that malfunctions or improper use of equipment like generators and space heaters)
- Hydrocarbons (furniture polish, lighter fluid, lamp oil, paint thinner, kerosene, gasoline)
- Pesticides (weed killers, ant and roach killers, mouse and rat poisons)
- Wild mushrooms

Routes of exposure

- Swallowing (taking too much or the wrong medicine)
- Inhaling (using a strong chemical in a room with no fresh air or ventilation, running a car in a closed garage)
- Skin contact (oven cleaners and pesticides can be harmful if they get on the skin)
- Eye contact (splashing strong chemicals in the eyes)
- Getting things under or through the skin (snake and spider bites, scorpion stings)

Poison prevention

- Use the poison prevention checklist to assess your home (see resources below)
- Keep items in original containers
- Use personal protective equipment (goggles, gloves, etc.)
- Use products according to manufacturer instructions (pay special attention to words like caution, "warning", and "danger")
- Keep a list of medications for each family member (don't forget to include herbal products, supplements, and vitamins)

- ◆ Acts as the occupational safety and health department for the Hospitals and Health Centers, both on and off-site (e.g., 30 health centers and 120 outpatient clinics)
- ◆ Handles hazardous chemicals and waste, regulated medical waste, safety training and education programs.

UMHS Drug Disposal Practices



- ◆ Pure forms of EPA-listed or characteristic drugs (considered hazardous waste) are disposed through a hazardous waste contractor.
- ◆ Currently, these contractors use a combination of incineration & landfilling.

Patient Education Methods

Disposing of old medications



Old medicines, including vitamins and nutritional supplements, are the #1 cause of poisonings in children under 5. Flushing them down the drain or toilet pollutes our water and can harm fish, turtles, waterfowl and the animals that eat them, including people. Improper disposal in the trash may create an opportunity for illegal use.



1. Keep the medicine in its original container.
2. Mark through, tape over or scratch off personal information.



For solid medications, such as pills or capsules: add a small amount of water to at least partially dissolve them. Seal the container with duct tape or other opaque tape.

For liquid medications: add enough table salt, flour, charcoal, coffee grounds or nontoxic powdered spice, such as turmeric or mustard to make a pungent, unsightly mixture that discourages anyone from eating it. Seal the container with duct tape or other opaque tape to prevent leaks and breakage.

For blister packs: wrap the blister packages containing pills in multiple layers of duct tape or other opaque tape.

Unused ampules, vials, and IV bags should NOT be opened (other than to scratch out the patient's name). Wrap the item with duct or other opaque tape to minimize breakage, and then place in an opaque plastic container (such as an empty yogurt or margarine tub).



3. Double bag the contained drugs in a closable plastic bag then place in a non-descript container such as a brown paper bag, box or can.
4. Tape the container closed and put it in the trash. This helps prevent immediate identification that the package contains drugs and helps contain any leaks if the container breaks during the disposal process. Avoid putting drugs into any material or food that might be attractive to pets or wildlife.



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- ◆ UMHS Web site
- ◆ Flyers posted and distributed in patient areas
- ◆ Patient contact via UMHA medical professionals

Targeted Education



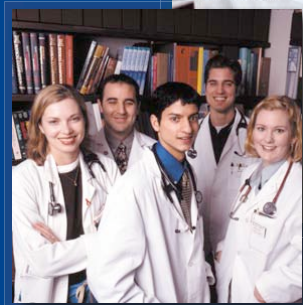
In the past, when the issue was industrial toxins, the solution was to control these toxins at their source. This is because wastewater treatment plants weren't made to deal with industrial toxins in the same way they're not made to deal with household drugs and chemicals. But now, Chris Hornback says controlling this new generation of pollutants at their source just isn't practical:

"A lot of the substances that we're talking about now including pharmaceuticals and other emerging contaminants are coming from the households. So, those sources are much harder to control. You can't permit a household. A wastewater treatment plant can't control what a household discharges so that's where public outreach, and education, and pollution prevention efforts come into play."

General Public:

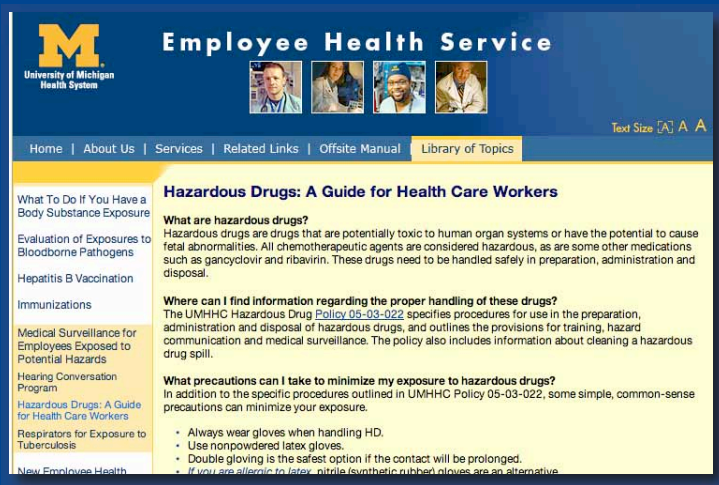
- ◆ Distribute flyers, clinics & pharmacies
- ◆ Emphasize the importance of proper disposal of PPCPs for personal and public safety reasons (safe water supply).

Points of Contact



- ◆ Pharmacy (Pharmacists)
- ◆ Hospital and Clinics (Physicians, Nurses, Students and Clerical)

Education Methods



Medical Professionals:

- ◆ Video: Our Waste Stream and Recycling Program

Future:

- ◆ Hospital newsletter: Articles, proper disposal of medications
- ◆ Identify increased and targeted education for medical professionals

Targeted Education



Child Safety

- ♦ UM and other hospitals may increase education efforts for health professionals and parents about bagging and trashing vs. flushing
- ♦ UM alone has the capacity to reach 1.6 million just via clinics.

Stewardship



- ◆ Medical professionals have an important role in educating patients about proper disposal methods.

Great Lakes & Human Impact



- ◆ No matter where you live, the ocean and the Great Lakes affects our lives every day.
- ◆ Communication & public outreach is vital.

Michigan Sea Grant

- ◆ Upper Peninsula
- ◆ Tawas
- ◆ Detroit
- ◆ Ann Arbor
- ◆ Grand Haven
- ◆ Traverse City

Thank you

References:

- ♦ Michigan Department of Environmental Quality (MDEQ), 800-662-9278 or email Deq-ead-env-assist@michigan.gov. Also see: www.deq.state.mi.us/documents/deq-ess-cau-rxbrochure.pdf
- ♦ U.S. EPA, www.epa.gov/ppcp.
- ♦ Washtenaw County, www.ewashtenaw.org (see Environmental Portal)
- ♦ University of Michigan Hospital System

Credits:

- ♦ Jan Lach, Safety Management Services
University of Michigan Hospital System